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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,976	10/20/2005	Hiroyuki Tanaka	Q90456	8235

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EXAMINER	
HU, HENRY S	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,976	TANAKA ET AL.	
	Examiner	Art Unit	
	HENRY S. HU	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Election of October 6, 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5-9 and 18* is/are pending in the application.

4a) Of the above claim(s) *18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3 and 5-9* is/are rejected.

7)☒ Claim(s) *7* is/are objected to.

8)☒ Claim(s) *1,3,5-9 and 18* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to **Election** filed on October 6, 2008, which is in response to Restriction requirement filed on June 17, 2008. **Applicants' Election on Group I (Claims 1, 3 and 5-9) is made without traverse.** No pre-amendment is applied with this election. Therefore, no claim is currently amended, cancelled or added.

2. As discussed earlier, a total of **two Pre-Amendments** and **one IDS** (1 page) have been filed so far. This Application **11/553,976** is from 371 PCT/JP04/05688 with a Japanese priority at **April 22, 2003**. With such two pre-amendments, **Claim 1 is amended; Claims 4 and 10-17 are cancelled, while new dependent Claims 10-17 and new independent Claim 18 are added**. To be specific, parent Claim 1 is amended to incorporate the limitation of dependent Claim 4 to use the plasma anti-aging compound as specified, while new parent Claim 18 is related to the composition of Claim 1 but using much broader limitation from the cancelled Claim 2 on plasma anti-aging compounds.

Claims 1, 3, 5-9 and 18 are now pending with **two** independent claims (Claim 1 and Claim 18), while non-elected Group II (Claim 18) is withdrawn from consideration. An action follows. See "**X**"-cited references in international search report for Applicants' priority document **PCT/JP2004/005688**.

Claim Objections

3. **Claim 7 is objected to** because of the following informalities:

On **Claim 7** at lines 1-2, the whole language as "The fluorine containing elastomer composition for the seal material of the semiconductor production device **for "plasma process" of Claim 1**" is improper. **Rewriting to be within the same scope is needed** according to MPEP since the scope of parent Claim 1 does not include the support for plasma process at all.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. The limitation of parent **Claim 1** of the present invention relates to ***a fluorine-containing elastomer composition for a seal material of a semiconductor production device.*** *It comprises*

two *components including: (A) a fluorine-containing elastomer and (B) a compound having plasma anti-aging effects,*

wherein said compound (B) having plasma anti-aging effects is at least one selected from the group consisting of an ***isoindolinone*** *pigment, a* ***quinacridone*** *pigment, a* ***diketopyrrolo-pyrrole*** *pigment and an* ***anthraquinone*** *pigment.*

See other limitations of dependent ***Claims 3 and 5-9****.*

6. **Claims 1, 3 and 6-9** are rejected under 35 U.S.C. 103(a) as being obvious over **Kawaguchi** et al. (US 6,642,300 B1 or its equivalent EP 1,182,230 A1), **Masaki** et al. (JP 2002-161264), **Goebel** et al. (EP 432,911A1), **or Michio** et al. (JP 05-279535) in combination or alone in view of **Tseng** et al. (US 6,870,662 B2).

It is noted that all **four** involved references are "**X**"-cited references in international search report for Applicants' priority document **PCT/JP2004/005688**. Regarding "**fluorine containing elastomer composition**" to be useful for making a seal material of a semiconductor production device in twice-amended parent **Claim 1**, the composition comprises **two** components including: (A) a fluorine-containing elastomer and (B) a compound having plasma antiaging effects. Current said compound (B) having plasma anti-aging effects is at least one selected from the group consisting of **isoindolinone** pigment, **quinacridone** pigment, **diketopyrrolo-pyrrole** pigment and **anthraquinone** pigment.

7. Each of **Kawaguchi, Masaki, Goebel and Michio** has individually disclosed the making of **some vulcanizable fluoropolymer compositions** to be suitable to make **seal, gasket, O-ring and the related products** and in most of the cases they are designed for plasma-resistance and/or heat aging-resistance.

To be specific, see **Kawaguchi** at column 3, line 9 – column 4, line 34 for fluorine-containing elastomer; abstract, line 1-3 for "seal or sealing"; abstract, line 1-12; column 1, line 8-13 for plasma resistance; column 2, line 6-13 for filler.

See **Masaki** at abstract; paragraphs 0002-0009 and 0028 for using fluorine-containing elastomer as "seal or sealing" with plasma resistance.

See **Goebel** at page 4, line 16-51 for fluorine-containing elastomer; page 2, line 10-11 for "seal or sealing"; page 8, line 32-38 for filler.

See **Michio** at paragraphs 0005-0006 and 0014 for fluorine-containing elastomer; paragraph 0001, line 4; paragraph 0004, line 4; paragraph 0025, line 6 for "seal or sealing nature"; abstract, line 1-8 for heat aging resistance; paragraph 0010 for filler.

8. Kawaguchi, Masaki, Goebel and Michio in combination or alone is still silent about adding a pigment compound (having plasma anti-aging effects) as filler to the composition, which is specifically selected from the group consisting of **isoindolinone**, **quinacridone**,

diketopyrrolo-pyrrole and **anthraquinone** as disclosed in the cancelled Claim 4. **Tseng** has taught such a subject matter. For instance, in the course of plasma treatment the polymer composition can be colored by dyes or pigments such as antraquinone dyes, quinacridone dyes and the like pigments. See column 3, line 65-67 for using polymer composition; see column 2, line 22-30; see using the claimed pigments at column 4, line 63 – column 5, line 23; particularly see column 5, line 3-5 and 19-22. By doing so, the plasma resistance is improved due to the generation of positively charged polymer and negatively charged pigment particles. See column 2, line 32-41.

9. In light of the fact that all involving references are dealing with working up the fluorinated elastomer composition to be suitable for making seal or the like sealing product and may be for the same or similar plasma resistance purpose, one having ordinary skill in the art would therefore have found it obvious to modify Kawaguchi, Masaki, Goebel or Michio's process of making such a fluoroelastomer composition by applying more filler such as the same or similar type pigment compound as taught by Tseng. By including such a pigment compound as filler for such a seal composition, one immediate advantage is that the plasma resistance will be enhanced due to the generation of positively charged polymer and negatively charged pigment particles. Better seal products particularly useful in semi-conductor industry can be readily obtained.

10. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al. (US 6,642,300 B1 or its equivalent EP 1,182,230 A1), Masaki et al. (JP 2002-161264), Goebel et

al. (EP 432,911A1), or Michio et al. (JP 05-279535) in combination or alone in view of Tseng et al. (US 6,870,662 B2), **and further in view of Hayashida** et al. (US 7,323,515 B2).

The discussion of the disclosures of the prior art of Kawaguchi, Masaki, Goebel and Michio each in view of Tseng for Claims 1, 3 and 6-9 of this office action is incorporated here by reference. Regarding dependent **Claim 5**, the references in combination is still silent about the seal product (to be suitable for semiconductor production device) containing no or reduced metallic atom. **Hayashida has taught such a subject matter**. For instance, see abstract, line 1-13; particularly see lines at 6-7 for **using a metal-free seal in production device of semi-conductor industry**. By doing so, such obtained seal products are effectively improved with better physical properties such as a lower compression set and a longer service life (abstract, line 9-13; column 1, line 12-24).

11. In light of the fact that all involving references are dealing with working up the fluorinated elastomer composition to be suitable for making seal or the like sealing product and may be for the same or similar plasma resistance purpose, one having ordinary skill in the art would therefore have found it obvious to modify Kawaguchi, Masaki, Goebel, Michio / Tseng's process of making such a fluoroelastomer composition by specifically **making a metal-free or metal-reduced seal product** as taught by Hayashida. By doing so, such obtained seal products are effectively improved with better physical properties such as a lower compression set and a longer service life. Better seal products particularly useful in semi-conductor industry can be readily obtained.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to fluorine containing elastomer composition to be useful for making a seal material of a semiconductor production device. It comprises: (A) a fluorine-containing elastomer and (B) a compound having plasma anti-aging effects as specified:

USPG-PUB 2008/0287627 A1 to Noguchi et al. have already disclosed a process for producing some fluoroelastomer seal compositions to be useful in semiconductor industry **by incorporating some organic type pigments** so as to improve plasma resistance. See paragraphs 0008, 0094 and 0111 for seal in semiconductor industry; see paragraphs 0002 and 0099 for using organic pigment as filler, which may improve plasma resistance. However, pigment compounds such as **isoindolinone**, **quinacridone**, **diketopyrrolo-pyrrole** and **anthraquinone** as disclosed in the cancelled Claim 4 is not specifically disclosed or suggested. Additionally, it has a later US priority date at **April 16, 2007**.

13. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu whose telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Vasu Jagannathan, can be reached on (571) 272-1119. The **fax** number for the

organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Peter D. Mulcahy/
Primary Examiner, Art Unit 1796

/Henry S. Hu/
Examiner, Art Unit 1796

December 30, 2008